UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,744	10/23/2003	Masahiro Yokota	244170US2S CONT	5332

22850 7590 06/24/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
DONG, DALEI	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/690,744	YOKOTA ET AL.
	Examiner	Art Unit
	Dalei Dong	2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-106* is/are pending in the application.

4a) Of the above claim(s) *1-7,21 and 23-106* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-20 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/23/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 21, 38-46, 55-58, 74-77 and 89-104 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species of a method of manufacturing an image display apparatus, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on June 6, 2005.

Applicant's election with traverse of a method of manufacturing an image display apparatus in the reply filed on March 31, 2005 is acknowledged. Applicant's election with traverse of a species of a method of manufacturing an image display apparatus in the reply filed on June 6, 2005 is also acknowledged. The traversals are on the ground(s) that the examination of the entire Application would not place serious burden on the Examiner. This is not found persuasive because the search of the entire Application would place serious burden on the Examiner. The extra burden is shown by the separate classification of the two patentably distinct inventions in different class and subclass. The requirement is still deemed proper and is therefore made FINAL.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement filed October 23, 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Method of Manufacturing an Image Display Apparatus by Supplying Current to Seal the Image Display Apparatus.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 8-13, 17-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,697,825 to Dynka in view of U.S. Patent No. 3,748,543 to Robertson.

Regarding to claim 8, Dynka discloses in Figures 1-3, a method of manufacturing an image display apparatus which comprises an envelope having a front substrate (12) and a rear substrate (14) opposed to teach other and individually having peripheral edge portions sealed together, the method comprising: arranging an electrically conductive sealing member (indium frit seal ring 60 including compressible protrusions 62, see column 7, lines 15-25 and column 8, lines 48-57) along a sealed portion between the respective peripheral edge portions of the front substrate (12) and the rear substrate (14); and sealing the sealed portion by melting the sealing member (see column 7, lines 1-14).

However, Dynka does not disclose supplying current to melting the sealing member.

Robertson teaches in Figures 1-5, a method of manufacturing an electrical apparatus comprising: heating and melting the sealing material or high voltage melting the sealing member (see column 7, lines 12-25) for the purpose of providing an improved hermetically sealed device and therefore prolonging the lifetime of the device.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the high voltage melting method of

Robertson to heat the sealing member of Dynka in order to provide an improved hermetically sealed device and therefore prolong the lifetime of the device.

Regarding to claim 9, Dynka discloses in Figures 1-3, arranging a frame-shaped sidewall (protrusion 62) between the respective peripheral edge portions of the front substrate (12) and the rear substrate (14), and providing the sealing member (60) between the sidewall (62) and at least one of the front (12) and rear substrates (12).

However, Dynka does not disclose supplying current to melting the sealing member.

Robertson teaches in Figures 1-5, a method of manufacturing an electrical apparatus comprising: heating and melting the sealing material or high voltage melting the sealing member (see column 7, lines 12-25) for the purpose of providing an improved hermetically sealed device and therefore prolonging the lifetime of the device.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the high voltage melting method of Robertson to heat the sealing member of Dynka in order to provide an improved hermetically sealed device and therefore prolong the lifetime of the device.

Regarding to claim 10, the Examiner asserts that supplying DC current or voltage to an electrical apparatus is old and well known in the art. Therefore, it would have been obvious to one having ordinary skill in the art to utilize DC current or voltage for the high

voltage melting method of Robertson, and the motivation to combine is the same as above.

Regarding to claim 11, the Examiner asserts that supplying AC current or voltage in the commercial frequency band is old and well known in the art. Therefore, it would have been obvious to one having ordinary skill in the art to utilize AC current or voltage for the high voltage melting method of Robertson, and the motivation to combine is the same as above.

Regarding to claim 12, the Examiner asserts that supplying AC current or voltage in the frequency band higher than the commercial frequency band is old and well known in the art. Therefore, it would have been obvious to one having ordinary skill in the art to utilize AC current or voltage in the frequency band higher than the commercial frequency for the high voltage melting method of Robertson, and the motivation to combine is the same as above.

Regarding to claim 13, Dynka discloses in Figures 1-3, indium or an alloy containing indium is used as the sealing member (see column 8, lines 48-57).

Regarding to claim 17, Dynka discloses in Figures 1-3, setting the temperature of the front substrate (12) and the rear substrate (14) to be lower than the melting point of

the sealing member (60) at a point of time immediately before heating the sealing member (60).

Regarding to claim 18, Dynka discloses in Figures 1-3, the front and rear substrates are made of a glass substrate and the sealing material is made of indium or indium alloy, which are the same materials as, disclosed by the Applicant. Therefore, having the difference between the melting point of the sealing member and the temperature of the front substrate and the rear substrate at the point of time immediately before the sealing member is heated is set within the range of 20°C to 150°C.

Regarding to claim 19, Dynka discloses in Figures 1-3, the sealing the sealed portion (60) includes heating the sealing member while arranging the envelope in a vacuum atmosphere.

Regarding to claim 20, Dynka discloses in Figures 1-3, the front substrate (12) and the rear substrate (14) are cooled to a temperature lower than the melting point of the sealing member (60) without failing to maintain the vacuum atmosphere after the substrates are heated and degassed in the vacuum atmosphere (see column 7, line 61 to column 8, line 47), the sealing member is heated and melted only, and the heating the sealing member is stopped so that heat from the sealing member (60) can be conducted to the front substrate (12) and the rear substrate (14) to cool and solidify the sealing member (60), whereby the envelope is sealed.

Regarding to claim 22, Dynka discloses in Figures 1-3, an electron source and a phosphor (shown in Figure 2) are arranged in the envelope (18) as the peripheral edge portion of the front substrate (12) or the rear substrate (14) is sealed, whereby the envelope is kept vacuum inside.

8. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,697,825 to Dynka in view of U.S. Patent No. 3,748,543 to Robertson in further view of U.S. Patent No. 5,827,102 to Watkins.

Regarding to claim 14, Dynka in view of Robertson discloses a method of manufacturing an image display apparatus which comprises an envelope having a front substrate and a rear substrate opposed to teach other and individually having peripheral edge portions sealed together, the method comprising: arranging an electrically conductive sealing member along a sealed portion between the respective peripheral edge portions of the front substrate and the rear substrate; and sealing the sealed portion by supplying current to and melting the sealing member, and the sealing member is arranged in the form of a frame along the sealed portion on the peripheral edge of the envelope.

However, Dynka and Robertson does not disclose on the peripheral edge of the envelope is formed two electrode portions protruding outward from the sealed portion, the sealing member being supplied with current through the electrode portions.

Watkins teaches in Figures 1 and 2, a method of manufacturing an image display apparatus comprising: on the peripheral edge of the envelope is formed two electrode

portions (54) protruding outward from the sealed portion (20 and 22), the sealing member being supplied with current through the electrode portions (54) for the purpose of easily sealing the display apparatus.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the electrode portions of Watkins for the voltage heating method of Robertson to heat the sealing member of Dynka in order to provide an improved hermetically sealed device and therefore prolong the lifetime of the device.

Regarding to claim 15, Watkins teaches in Figures 1 and 2, the cross section of each of the electrode portion (54) is grater than the cross section of any other portions of the sealing member (20 and 22), and the motivation to combine is the same as above.

Regarding to claim 16, Watkins teaches in Figure 1A, the two electrode portions (54) are arranged individually in portions symmetrical with respect to the peripheral edge portions of the envelope, and the motivation to combine is the same as above.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art are cited to further show the state of the art of a method of manufacturing an image display apparatus.

U.S. Patent No. 5,674,351 to Lovoi.

U.S. Patent No. 6,392,334 to Alwan.

U.S. Patent No. 6,592,419 to Alwan.

U.S. Patent No. 6,724,143 to Chen.

U.S. Patent No. 6,840,833 to Motowaki.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (571)272-2370. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571)272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D.D.
June 20, 2005

Joseph Williams
Primary Examiner
Art Unit 2879